

241 Large plantations of tea, coffee, rubber and
313 cinnamon have been developed, chiefly by British, in the highlands in the past hundred years, and in the forests teak provides a basic industry

132 The rainfall is very heavy, especially in the north where the mountains encroach nearer to the sea. Through most of the area it varies between 75" and 170"; in the extreme south it drops to 32". Most of the rain comes with the southwest monsoon between May and September; lighter rains occur with the northeast monsoon in late November and December. Humidity is always very high. In most areas two wet paddy crops are taken in a year, in February and September. The temperature varies from 70° to 90°, and is hottest in April just before the monsoon breaks.

[4] (2) Political Divisions

63/ From the establishment of British supremacy in 1792, until July 1949, the Malabar Coast was divided into three political areas. In the north is the Malabar District of Madras State, in area 5,790 square miles. It is governed in internal affairs by the legislative assembly of Madras, and is under a Collector (of land revenue) who lives in Calicut, the capital of the district. The port of Cochin is also administered as part of Malabar District. In the centre was Cochin State, in area 1,493 square miles. It was governed internally by the Maharaja of Cochin, assisted by the Cochin legislative assembly, whose headquarters was in Ernakulam, the capital. In the south was Travancore State with an area of 7,625 square miles, under the Maharaja

177 nese (from at least the sixth century) and after 1498 the Portuguese, followed by the English, Dutch, and French (Logan, 1951, I: 251-254, 258, 294-300).

133 The coast falls roughly into three natural divisions: the coastal strip, the midlands, and the highlands rising into the Ghats (cf. Buchanan,

[245] 1807: 565-586). The coastal strip is flat and sandy. Its chief product

[243] is coconuts, with some rice and bananas. In the southern half it is broken by salt-water lagoons which for over a hundred miles form a continuous navigable chain parallel to the sea. Most of the chief

361 towns are situated on the coast, divided by chains of little fishing villages. Many of the coast towns are ancient, and most of them lie at the mouths of navigable rivers which flow westward from the Ghats.

[480] From time immemorial raw materials, chiefly pepper, were brought [439] by boat from the inland hillsides for shipment from these ports.

133 The midlands comprise low hills and fertile valleys. Broad strips of alluvial rice lands lie in the valleys, thinning out as the land rises into the foothills of the Ghats. On the hill slopes are gardens of co-

245 nut palms, bananas, pepper, ginger, and many fruit trees such as jack and mango. It was probably wild pepper which was exported in

[439] Roman times, but pepper and other spices have been deliberately cultivated at least since 1290 (Ricci, 1931: 328). Cashew nuts, introduced by the Portuguese, formed an additional export crop. Small

361 merchant settlements, market-centers, and the military fortifications of petty chiefs existed at strategic points on river banks. Some of these

443 centers grew into bazaar towns in the nineteenth century. But the mass of the population traditionally lived, as today, in scattered village communities on garden land surrounding or surrounded by fields

243 of wet rice, the main subsistence crop. Wet-rice cultivation depended 231 on plough agriculture with teams of oxen or water buffalo. Goats and chickens were the other significant domestic animals.

361 The highlands rising into the Ghats were covered mainly by deciduous forests. The foothills, interspersed with occasional rice flats,

[133] were sparsely populated by people of the same cultural groups as those in the plains. They eked out their wet-rice cultivation with gar-

[241] den crops of fruits, spices, and vegetables, with shifting hoe cultivation of dry grains on hillsides, and with forest hunting of elephant,

[224] deer, and pig. Higher in the mountains lived primitive tribes of hunters and shifting cultivators, having only occasional contacts with the kingdoms of the plains.

● 132 Throughout most of the area Kerala's rainfall varies between 75 and 170 inches, being heaviest in the north where the mountains are

●132 nearer to the sea (Innes, 1908: 270). The temperature varies from 70° to 90° and humidity is always high. Unlike most of the great kingdoms of India, Kerala had no single great river and no extensive, centrally organized irrigation system. Instead, her cultivated crops and lush vegetation depended on the heavy rainfall and numerous small rivers and streams by means of which small-scale irrigation was easily possible to groups of families.

132 Further, the heavy rainfall, seasonal floods, and hilly terrain made communications difficult until modern times. Before the partial conquest of Kerala by Mysoreans from the northeast in 1766, there were no roads, wheeled vehicles, or pack animals. The kings maintained small cavalry forces only in the coast towns, traveled in palanquins, and employed runners to carry messages to their vassal chiefs. Goods were dragged downstream by elephants, transported in boats, or carried on the backs of men. Armies moved slowly; local nobles sometimes rebelled against their rulers but warfare was abandoned in the heavy southwest monsoon season from May to September. The difficulty of communications and the lack of a centrally organized irrigation system may have been connected with the fact that Kerala had no regular land tax until the 1730's (*ibid.*: 308). Instead, the revenues of her rulers came from tribute in kind supplied by subordinate nobles, and from taxes levied upon overseas trade (Logan, 1951, II: ccxviii; Innes, 1908: 307-308).

439 In spite of the overseas trade, most of Kerala's villages were traditionally self-sufficient for the basic necessities of life. Quantities of manufactured goods were brought to Kerala's ports from other parts of India for shipment to the Middle East, but indigenous crafts such as weaving, metalwork, pottery, and basketry remained simple and served local needs. Kerala thus had no large urban castes of craftsmen and no indigenous merchant castes, but only immigrant communities of Syrian Christian, Jewish, Muslim, and, later, European merchants and Hindu merchants from other kingdoms of India, all concentrated in the coastal towns. The limited nature of trade and crafts and the comparative self-sufficiency of village life also help to account for the relatively decentralized political structure.

History

175 Little is known of Kerala until the first century A.D. It then formed part of the kingdom of Chera, whose capital was probably east of the Ghats at Karur on the Kaveri River in the modern Trichinopoly district. Chera, like its companion South Indian kingdoms, Chola and

leg, and so on, in the event of his having fulfilment of his desire. The offering is never an adjunct of the prayers; it is always something done for benefit received. The thing to be noted is that a vow is *always* fulfilled; fulfilled as well as the vower can possibly fulfil it; it is never forgotten or overlooked. 782

"When the devil was sick the devil a saint would be

"When the devil was well the devil a saint was he"

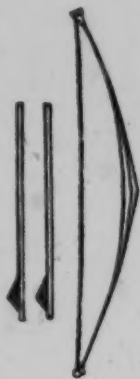
is a couplet inapplicable to the Nayar, or, indeed, to any people in Southern India, where vows, of objects to be given or animals to be sacrificed, are treated always with the utmost sacredness even by people who perhaps in no relation of life behave for an hour with common honesty.

A true Malayali festival is that held at Kottior, in North Malabar, in the forest at the foot of the Wynad hills rising 3,000 to 5,000 feet from the sides of the little glade where it is situated. It is held in July during the height of the monsoon rain. The average rainfall at Kottior in July is probably 60 inches at least, so the devotees generally get a good ducking. Though it is a festival for high and low these do not mix at Kottior. The Nâyars go first, and after a few days, the Nâyars having done, the Tiyans, and so on. A curious feature of it is that people going to attend it are distinctly rowdy, feeling they have a right to abuse in the vilest and filthiest terms everyone they see on the way—perhaps a few days' march; and not only do they abuse to their hearts' content in their exuberant excitement, but they use personal violence to person and property all along the road. They return like lambs. 796

I have not been able to ascertain with that definiteness which would enable me to offer more than an opinion, the connection between this violence of language and physical force against innocent people who are met *en route*, and the object of worship at Kottior, so will leave that part of the subject alone. The other day I visited the Gangamma festival at sacred Tirupati in North Arcot, and observed, together with conduct the most truly religious vows being carried out with the strongest disregard to personal comfort, the use of language truly filthy and obscene towards the goddess herself! "Gangamma! You have a— (using a filthy word for the vagina) as big as a basket." "She is a whore" said another; and each one in the little crowd of votaries, evidently from the same village, as they approached the shrine, tried to out-do the other in insult and vituperation of the goddess to whom they had 782

796 festival, about the time when the first crop of paddy is
 [132] harvested. As a rule the Ônam season is one of
 bright sunshine following the almost continuous rain of
 June, July and August.

526 Once witnessed a very interesting game called èitû
 796 (èiththu), played by the Nâyars in the Southern portion
 of Kurumbranâd during the ten days preceding Ônam.
 184 Curiously, the locality and the period are, so to speak,
 fixed. There is a semi-circular stop-butt, about two feet
 in the highest part, the centre, and sloping to the ground
 at each side. The players stand 25 to 30 yards before
 the concave side of it, one side of the players to the right,
 the other to the left. There is no restriction of numbers
 as to "sides." Each player is armed with a little bow
 made of bamboo about 18 inches in length, and arrows
 or what answer for arrows, these being no more than
 pieces of the midrib of the cocoanut palm leaf, roughly
 broken off, leaving a little bit of the leaf at one end to
 take the place of the feather. In the centre of the stop-



butt, on the ground, is placed the target, a piece of the
 heart of the plantain tree, about 3
 inches in diameter, pointed at the
 top, in which is stuck a small stick
 convenient for lifting the "cheppu"
 as the mark which is the immediate
 objective of the players is called.
 They shoot indiscriminately at the
 mark, and he who hits it (the little
 arrows shoot straight and stick in
 readily) carries of all the arrows
 lying on the ground. Each "side"
 strives to secure all the arrows and
 to deprive the other side of theirs.
 A sort of "beggar my neighbour."
 He who hits the mark *last* takes all
 the arrows; that is, he who hits it,

and runs and touches the mark before any one else hits it.
 As I stood watching, it happened several times that as
 many as four arrows hit the mark, while the youth who
 had hit it first was running the 25 yards to touch the
 "cheppu." Before he could touch it, as many as four
 other arrows had struck it; and, of course, he who hit
 it last and touched the mark secured all the arrows for
 his side. The game is accompanied by much shouting,
 gesticulation, and laughter. Those returning after
 securing a large number of arrows turned somersaults,
 and in saltatory motions expressed their joy.

796 the tank for the purpose. Then all or almost all of these plunge
533 in the water and begin to take part in the singing that is pre-
[515]sently to follow. One of these then leads off by means of a
peculiar rhythmic song chiefly pertaining to Cupid. This singing
is simultaneously accompanied by a curious sound produced
with her hand on the water. The palm of the left hand is closed
and kept immediately underneath the surface of the water. Then
the palm of the other is forcibly brought down in a slanting
direction and struck against its surface. So that the water is
completely ruffled and is splashed in all directions producing a
loud deep noise. This process is continuously prolonged
together with the singing. One stanza is now over along with
the sound and then the leader stops a while for the others to
follow her in her wake. This being likewise over, she caps her
first stanza, with another at the same time beating on the water
and so on until the conclusion of the song. Then all of them
make a long pause and then begin another. The process goes on
until the peep of dawn when they rub themselves dry and come
home to dress themselves in the neatest and grandest possible
attire. They also darken the fringes of their eyelids with a sticky
preparation of soot mixed up with a little oil or ghee; and
sometimes with a superficial coating of antimony powder. They
also wear white, black, or red marks lower down the middle of
their foreheads close to the part where the two eyebrows near one
another. They also chew betel and thus redden their mouths
[526]and lips. Then they proceed to the enjoyment of another
prominent item of pleasure, viz., swinging to and fro, on what is
usually known as an Uzhinjal.*

796 "On the festival day after the morning bath is over, they
264 take a light meal and in the noon the family-dinner is voraciously
262 attacked; the essential and almost universal ingredients of which
[535]being ordinary ripe plantain fruits and a delicious preparation
of arrow-root powder purified and mixed with jaggery or sugar
and also cocoanut. Then till evening dancing and merry-making
are ceaselessly indulged in.

796 "The husband population are inexcusably required to be
[538]present in the wives' houses before evening as they are bound
to do on the Onam and Vishu occasions; failure to do which is
looked upon as a step or rather the first step on the part of the
defaulting husband towards a final separation or divorce from the
wife. Despite the rigour of the bleak December season during
[132]which commonly the festival falls, heightened inevitably by the
[515]constant blowing of the cold east wind upon their moistened
frames, these lusty maidens derive considerable pleasure from
their early baths and their frolics in water. The biting cold of

* A swing made of bamboo.

776 during that night for fear of calumny. There, the men
821 do not care much. We will now bid adieu to Mr. Gopal
[184] Pannikar, but not without thanking him for all he has
told us about his own people.

241 Uchâl (Uchaval) is the term used for the first three
days of the Malayalam month Makaram, usually falling
[243] between the 15th and 20th January. All over Malabar,
with the exception of Wynâd, above the ghâts, there are
two crops of rice every year, one with the south-west, one
• [132] with the north-east monsoon. Elsewhere in Southern
[776] India rice land is always irrigated, but in Malabar there
is no such thing, practically, as irrigation, the heavy
rainfall rendering it unnecessary, and the earth goddess—
Bhûmi Dêvi—brings forth her fruit under the stimulus of
the rain from heaven. She produces the crops as a
female produces her children, and from the 1st of the
month Makaram, she rests until the cultivator again
begins to disturb her, three months later, when the
showers preceding the south-west monsoon fall. Uchâl
is the period of three days when the earth goddess mens-
truates. Granaries and all receptacles of grain are closed
during Uchâl—they are not even visited. Paddy is not
sold. No implement of cultivation is touched. The rice
to be used during the three days is pounded out before-
hand and kept separate. But it is no season of gloom;
rather is it one of festivity. As particular forms of food
241 partaken on specific occasions have an interest of their
252 own, we must not omit description of the Uchâl cake—
262 the Pâla Ata. (Pâla—spathe of the areca-palm, Ata—
cake). A paste is made of rice flour and water and
spread thickly (about an inch thick) on one side of two
pieces of the spathe of the areca-palm, each piece being
from 2 to 3 feet in length and about 8 inches wide.
Powdered jaggery, scraped cocoanut, powdered ginger, a
little garlic and other condiments, are then put in small
quantities on the paste. The two pieces of the spathe
are then placed together, and they are stitched all round
the edges. The whole is covered over with soft red mud
and put into a fire where it is kept until the mud covering
cracks. The cake is then cooked and ready for eating.
It is cut and distributed to members of the family and
friends.

564 In parts of Malabar the Tiyan tenants present these
262 cakes to their Nâyar landlords as a token of allegiance
or submission. Rice is the only article of food which if
466 prepared by a Tiyan the Nâyar cannot eat; so the Nâyar
241 has no caste scruples about eating the Pâla Ata prepared

133 is the undulating terrain of the midland with laterite soil. This middle region is
 247 rich in agricultural produce; paddy, tapioca, spices and cashewnut being some of
 the main crops of this area.

Climate and Rainfall

132 1.5 The same diversity which characterizes the physical features of the State, also occurs in case of the climatic conditions. Whereas the highland has a cool and bracing climate throughout the year, the plains are hot and humid. However, the range of variation in temperature is very narrow, the normal limits being 80°-90°F.

1.6 The average level of annual rainfall is quite high being in the neighbourhood of 96 inches. In fact only Konkan and Malabar-South Konkan region with 109 inches and 121 inches surpass Kerala in the annual volume of rainfall. Since Kerala is fortunate in getting precipitation both from the south-west and the north-east monsoons, the rainfall is fairly spread out over the year. January to April are practically the only months which are completely dry. Moreover, annual variations in rainfall are also comparatively low. The co-efficient of mean deviation of annual rainfall is only 6.5 which is lower than that of all the other States, except Assam (Table 1).¹ Draughts are, naturally, rare.

ECONOMIC CONSEQUENCES OF THE PHYSICAL CHARACTERISTICS

133 1.7 The influence of geological formation and geographical features on the economic structure and the growth possibilities varies from region to region. However, some of these stand out distinctly in the case of Kerala. The high mountainous wall of the Western Ghats and its close proximity to the sea is responsible for the heavy and regular rainfall which this State receives. The high characteristic rainfall, in turn, is responsible for a number of features of this State. The large number of high value yielding plantation crops and the rich forest growth owe their existence to the rainfall and the suitable climatic conditions found in the Western Ghats. The abundant rainfall has also provided Kerala with a large number of rivers. These are the storehouse of water resources—one of the chief assets of Kerala. There are 44 rivers in addition to a much larger number of small rivulets and streams. Forty-one of these rivers are west flowing and yield a total run off of 2,500 T.M.C. ft.² This is as high as 5 per cent of India's total water potential, whereas the total area of Kerala is only about 1.2 per cent of the area of India.

1.8 Since the Western Ghats are in close proximity of the sea coast, most of the rivers are also very short, the average length being only 40 miles. Only four rivers, viz., Beypore, Bharatapuzha, Periyar and Pamba are more than 100 miles in length. Although the rivers are small, they carry sizable flows and these provide the State with rich irrigation potential.

[Text continues on p. 9]

¹ Table 1 refers to the States as they existed before the reorganization. The conclusions, strictly speaking, refer to only Travancore-Cochin. However, they are broadly true of Kerala as a whole also.

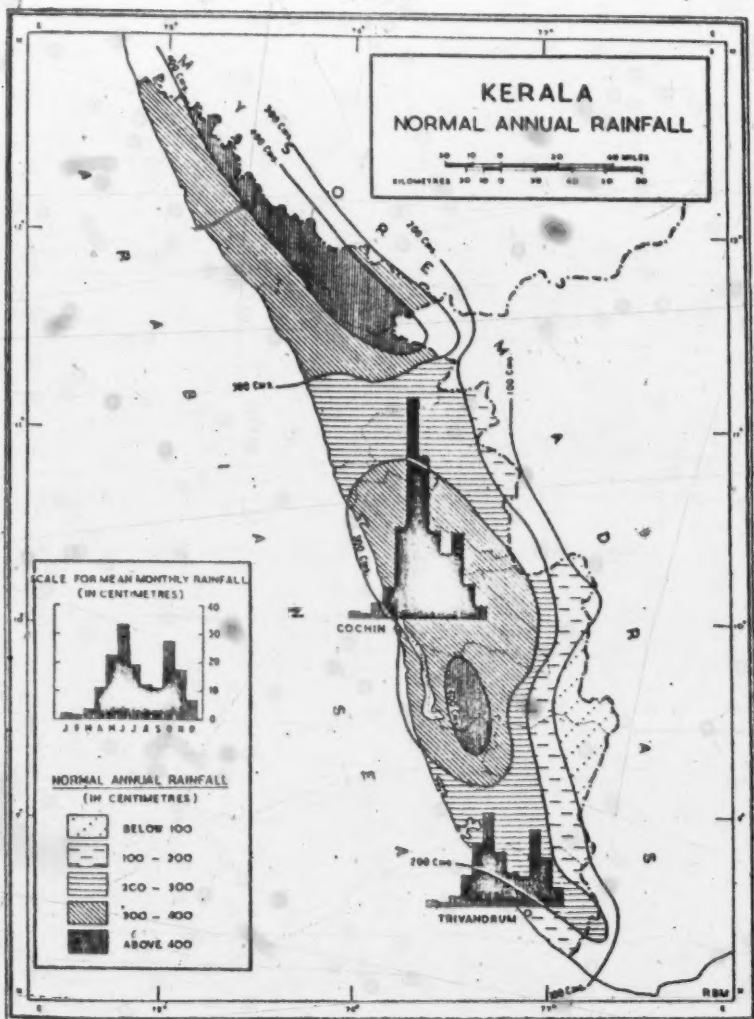
² T.M.C. ft. = Thousand Million Cubic Feet.

Sources: *Water Resources of Kerala*, PWD, Government of Kerala.

* [Table 1, appearing on p. 269 of the text, has not been preserved -- Anal.]

[P. 3]

MAP 2



AGRICULTURE AND PLANTATION CROPS

21

crops is about 8 per cent of the gross cropped area. A direct consequence of this type of cropping pattern is the high degree of commercialization which has been attained in the agricultural sector. This has important implications for the State economy. The State exports its commercial crops, and imports its foodgrain requirements. In this exchange the State stands to gain since cash crops yield far higher return per unit of area than the food crops. Secondly, quite a few of the commercial crops grown in the State are of a perennial nature and require large investments. This has led to the establishment of numerous large scale organized plantations and farms, although small farms also play an important role.

2.6 A chronic food deficit is the third important feature of the agricultural sector, mentioned above (para 2.1). The current production of foodgrains is roughly 967,000 tons. Current requirements on the basis of a norm of 17 ozs.¹ of foodgrains per day per adult (unit) work out to a figure of 24 lakh tons. The gap between food requirements and the current level of production thus works out to over 50 per cent of total requirements. This is higher than in any other State. However, this need not cause excessive anxiety. It is not necessary for every State in the Union to try and achieve self-sufficiency in food at the cost of other more valuable commercial crops. From the long run point of view, the aim should be to strike a balance between supply and demand for foodgrains at the national, rather than, strictly, at the level of the State. The psychological desire to attain a balance between local supply and demand for foodgrains in the State is a legacy of the lean period of 1940-50 when the State was hard hit by the severe food shortage prevailing in the country.

Climate and Geographical Factors

2.7 The climate and rainfall in Kerala are excellently suited to the prevailing cropping pattern. The climate is cool and humid in the high ranges while it is humid and warm in the plains. The range of temperature variations during the year is very small, the maximum never going beyond 90°F and minimum rarely below 75°F. The humidity, however, is very high in the rainy season—about 90 per cent. The State is fortunate in respect of rainfall. The normal annual rainfall is 95 inches a year; it may be as high as 150 inches in the high ranges, but nowhere it is less than 65 inches. Most of the precipitation occurs during May to September when the State receives the south-west monsoon. Taking the State as a whole, it may be said that it is one of the most wet areas in the country (Table 1).² Assam has about the same normal rainfall as Kerala. Only the Konkan coast (Bombay) and South Kanara (Mysore) exceed it. The annual deviation in rainfall is also comparatively low with the co-efficient of mean deviation at 6.5 per cent for Travancore-Cochin and 9.2 per cent for Malabar (Table 1). On the whole rains are more reliable in Kerala than in most other States.

2.8 Kerala has two distinct geographical divisions, namely, the Travancore-Cochin and the Malabar area. The soils of Travancore-Cochin area are generally

¹ The Nutritional Advisory Committee to the Government of India recommended 18 ozs. of foodgrains per adult unit per day as the desirable norm. We have used a slightly smaller figure (17 ozs. per day) in our calculations.

² [Table 1, appearing on p. 269 of the text, has not been processed - Analysis]

Tea

* 433 2.94 Tea is foremost among the exports of Kerala and the second most important cash crop of the State in terms of net value contributed. It also employs the largest number of persons among the plantation crops. In 1957-58, out of the total exports worth Rs. 56 crores from the ports of Kerala, tea alone accounted for Rs. 24.3 crores.

132 2.95 The growth of tea plant is very much influenced by natural factors such as temperature and rainfall. A warm and moist climate with a temperature range of 55°-95°F, and an aggregate of 100 to 250 inches of well distributed rainfall are ideal conditions for the growth of tea bushes. It is grown at altitudes of over 2,000 feet above sea level and requires a well drained soil for anchorage and shade of trees.

133 The Wynad range (3,000 ft. elevation) of Malabar and Kannan Devan Hills (5,000 ft. elevation) of Travancore-Cochin area possess all these attributes.

2.96 Between 1951 and 1958 the area under tea in the State increased from 93,000 to 97,000 acres, that is, by 5.4 per cent. On the output side, the production of tea in the State during 1958 was 80.0 million lbs. as against 66.4 million lbs. in 1951, registering an increase of 35 per cent. The increase in production has thus been largely due to increase in yields between 1951 and 1958. By 1958 the yield rate reached a record level of 957 lbs. per acre. This increase has been steady and is higher than the corresponding all-India rise. However, even at present the average yield per acre in Kerala is lower than that in the case of other principal tea growing States of India such as Assam, West Bengal and Madras.

2.97 Higher prices and increased demand after the last world war gave an inducement to the planters to adopt intensive techniques of cultivation such as application of large dosage of fertilizers, better management and care. These have been primarily responsible for a larger outturn per acre. However, this trend is not likely to continue indefinitely as the bushes are getting aged. Experienced planters feel that with further improvements in cultivation techniques and increased application of fertilizer mixtures, it would be possible to raise the average yield to 1,000 lbs. per acre.

2.98 *Replantation*: The economic life of a tea bush ranges from 40 to 60 years and this makes it necessary to have a planned programme of replantation. Nearly half of the tea acreage in South India was planted during the early part of the century using Assam seeds. The remainder is the old China hybrid. Till 1953 only 0.72 per cent of the tea area had been replanted.

2.99 Replanting of tea had been neglected till recently. Most of the plantation estates were distributing the major part of their profits and there was very little ploughing back. The need for replanting on an appreciable scale received recognition only about 10 years ago but the situation has not improved still. Since no profits had been ploughed back to build up reserves, absence of replantation is largely explained by the lack of financial resources with the planters. Government aid in the form of long term loans for plantation, therefore, seems to be the only solution.

452 The Plantation Enquiry Committee examined this problem in detail and recommended the creation of a fund for replantation. No action seems to have been taken so far.

AGRICULTURE AND PLANTATION CROPS

45

Since this is a matter of all-India policy, the State Government should press the Central Government for an early action on this. 433*
245
427

2.100 Tea estate lands are leased to growers by the Government. Most estates hold lands in considerable excess of areas which actually bear tea. Government should compel the lessees to undertake planting tea in all the suitable areas; failing this, the surplus lands may be taken back from the lessees by the Government.

2.101 A programme of replantation of at least 10,000 acres per year would be necessary during the Third and Fourth Plan periods, specially to compensate for the past neglect. Fresh leases need not be granted for this purpose as there are vast uncropped areas adjacent to tea estates in the areas already leased. Pressure, inducement, incentives in the form of replantation loans and the supply of materials may be employed to achieve the desired results. Estimates of cost of bringing an acre up to the bearing stage vary from Rs. 2,150 to Rs. 3,650 per acre. Adopting the estimate of the Tea Planters Association at Rs. 2,500 per acre, the total investment necessary to raise 10,000 acres of new plantings per year for the next 10 years would be of the order of Rs. 25 crores.

2.102 *Size of the Plantations:* In 1957, there were 282 estates in Kerala. The average size of tea gardens in the State is 350 acres. However, about 50 per cent of the estates were less than 200 acres in area. For economic functioning of a tea estate, it is necessary to have a modern tea processing unit (generally known as a tea factory) attached to the garden. Different estimates show that to be an economic unit, a tea factory needs 822,000 lbs. (about 10,000 maunds) of green leaves a year and to produce this quantity anywhere from 250 to 300 acres of tea acreage would be needed. If this is accepted as a norm, it may be said that about half the tea estates in Kerala are uneconomic. This is indeed a serious problem, since the economic functioning of an estate as well as the quality of tea produced depends on the size and the type of processing machinery employed. An increase in the size of all the plantations with an area below 250 acres is necessary. Long term replantation loans and fresh leases of land, if available, are suggested as measures to correct the existing imbalance. 423

Rubber

2.103 Kerala holds almost complete monopoly in the sphere of rubber production in the country. Kottayam has the largest concentration of rubber acreage in India. During 1958, Kerala produced 22,159 tons of rubber valued at Rs. 7.69 crores, out of a total all-India production of 25,000 tons. The rubber plantations also employ a large labour force of approximately 80,000 persons. 433*
249
464

2.104 Soil, climate and other natural conditions found in Kerala are quite well suited to the growth of rubber plants except that rainfall is not as well distributed over the year as in some other rubber growing areas of the world, such as Malaya and Ceylon. This factor has had a somewhat adverse effect on the yields, which might otherwise have been higher than the present level of 294 lbs. per acre. [132]

2.105 During the last decade there has been a sharp increase in the area under rubber. Between 1951 and 1958 it increased by 90 per cent, that is, from 141,760

* 433
245 total area under cardamom in the State during 1957-58 was 69,658 acres, i.e., about 54 per cent of total acreage under the crop in India. It is grown in high ranges at altitudes varying from 2,000 to 5,000 feet under the shade of trees as an understorey. The crop requires more or less the same natural conditions for growth as pepper or tea.

[438] 2.129 Production of cardamom in the State during 1957-58 (1,242 tons of dry pods), however, was about 65 per cent of the total output of the country, which shows a higher per acre yield in Kerala than in the rest of India. Even within Kerala, cultivation of cardamom is highly localized, Kottayam accounting for over 80 per cent of the area under cardamom in the State. The major cardamom growing areas in the State are: the *Cardamom Hills*, Nelliampathi, Wynad, and Vembanad.

2.130 There has been a noticeable increase in the rate of yield in Kerala during the last decade. It rose from 30 lbs. per acre in 1952 to 40 lbs. per acre in 1958. This increase has been largely due to better cultivation practices and manuring.

2.131 There was no plan for cardamom development prior to the Second Plan. During the Second Plan period research and development schemes for improvement of cardamom were initiated. It was proposed to evolve high yielding varieties and also to devise ways and means of controlling and eradicating pests and diseases which do harm to the crop. These are comparatively long term measures. To help further intensification of work on cardamom development, it is suggested that 10 additional nurseries should be established for raising and distribution of disease-free plants as well as for studying the local problems. Five to eight of these nurseries may be established in Kottayam and the rest in other cardamom growing areas. Cardamom yields could be raised by at least 100 per cent during the coming decade, provided the crop is adequately manured and reasonably protected against diseases and pests. There is a disease locally known as *Kattee* which does great damage to the crop. More vigorous steps should be taken to control and prevent this disease through intensification of efforts as well as through widening the scale of operations.

2.132 There is scope for extending the area under cardamom within the existing rubber and tea plantations, since some parts of unoccupied area in these plantations are suitable for cardamom. There are also some lands suitable for cultivation of cardamom under the jurisdiction of the Forest Department, mostly in the Silent Valley. It is suggested that the State should start cardamom plantations in such lands and, 20,000 acres may be put as the target for the area to be covered during the Third and Fourth Plans. At the rate of Rs. 200 per acre, the total investment for covering 20,000 acres with cardamom would be Rs. 40 lakhs.

Coffee

● [132] 2.133 Kerala is the third largest coffee producing area in the country. With 41,123 acres and 3,000 tons of output per annum in 1957-58 it accounted for about 15 per cent of the area and 17 per cent of coffee production in the country. Coffee thrives in the tropical belt lying between 25°S and 30°N of equator. It requires a rainfall of 60 to 90 inches per annum with a distinct rainy and dry season and an average temperature of 70°F. The conditions required for coffee growth are present

Chapter 4

Forests

FORESTS RANK AMONG the key resources of Kerala. Estimates of the area under forests differ widely. According to the Revenue Department figures, the area under forests is 24.58 lakh acres, that is, 26.2 per cent of the total area of Kerala. According to the Forest Department, the area under its jurisdiction is 22.28 lakh acres. Private forests account for another 4.80 lakh acres thus giving a total forest area of 27.08 lakh acres (30 % of the total area). Whichever be the correct figure, it is clear that the proportion of area occupied by forests is much higher in Kerala than the average for the whole of India (17.2%).

4.2 Apart from the importance of forests as a source of raw material for the industry, and timber for other uses, forests have a moderating effect on the climate and act as a vegetal cover protecting the soil from erosion. The position in Kerala is quite satisfactory in respect of the protective function of forests. A large number of perennial tree crops like coconut, arecanut, cashewnut and rubber are also grown in the State. Their effectiveness in protection of the soil and influence on climate is as great as in the case of the forests. These perennial crops, therefore, act as a useful subsidiary to the actual forest growth.

4.3 The quality of forest growth of Kerala is also of a very high order. During 1955-56, forests contributed Rs. 5 crores,¹ that is, 1.4 per cent of the State income, which is almost double the all-India average (0.7%). Per acre yield of forests is also higher in Kerala. Whereas it was Rs. 5.6 per acre on an average for India, it was as high as Rs. 18 per acre in Kerala during 1955-56. Employment potential of forests, however, is quite meagre in relation to the area they occupy. Forests in Kerala employed only 19,000 workers, that is, 0.35 per cent of the total working force (all-India 0.4 %). Forests generally require only a few hands to work as the maintenance staff and as labour for extraction and logging.

Type of Forests and their Regional Distribution

4.4 The high yield and the large variety of important commercial species grown in the State are a consequence of the climatic and topographical features of the State. Kerala gets the benefit of south-west as well as north-east monsoons. As a result of these, the State is well assured of a good rainfall which, in addition, is fairly well

¹. Appendix 2 explains the method of calculation.

distributed over the year. The high degree of rainfall, old geological formation and maritime climate have largely been responsible for the luxuriant forest growth in Kerala. Trees get the full benefit of moisture, depth of soil and protection from frost and drought. For these reasons, forests in Kerala also possess the advantage of a long growing season.

4.5 Most of the forest area lies in the high ranges on the eastern border of the State and in the area adjacent to these. Only a few strips are found in the coastal plain. The forest area is, however, distributed over all the districts of the State. Since the forests run across the whole of eastern border while the districts in the State occur almost longitudinally, all districts, except Alleppey have a good proportion of their area under forests. The districts of Quilon and Trichur have as high as 45.2 per cent and 45.1 per cent respectively of their area under forests. (Table 23)

4.6 The wide variations in climatic and topographical conditions in the State have resulted in a large variety of forests. With the exception of the desert, the truly temperate and the alpine types, all classes of forests are found in Kerala. In addition to the natural forests, Kerala has also got artificial plantations of valuable species. The State has been a pioneer in this sphere.

4.7 Among the natural forests, deciduous forests comprise 80 per cent of the growth. The rest is of the evergreen type. The evergreens are found mostly in the higher ranges above a height of 2,500 feet since they require a cool climate for their growth. The various types of forests found in the State are given below:

(1) *Evergreen Type*

- (a) Southern tropical wet evergreen forests,
- (b) Southern tropical semi-evergreen forests,
- (c) Mountain wet sub-tropical evergreen forests, and
- (d) The temperate Shola-Grasslands.

(2) *Deciduous Type*

- (a) Southern tropical wet Deciduous forests and
- (b) Tropical dry Deciduous Forests.

4.8 Among the evergreen types, most of the species are utilized in the manufacture of plywood and packing cases, which is a flourishing industry in the State. Pali Kulamavn and Vellapine are some of the well known plywood species. Anjali, which is used for boat-building and mahogany utilized for furniture, are two other important economic species found among the evergreens. Of late, a number of other evergreen species have sprung into prominence and are now finding economic uses. Since markets for these are growing, it is planned to extract these newer species also on a commercial scale.

4.9 Teak and rosewood are the most important species found among the deciduous forests. Vanteak, Rosewood, Poola and Charopine are some of the other important species belonging to this category. These species are chiefly useful in making furniture and in building and construction work. A detailed list of the trees and other major produce found in Kerala along with their present uses is given in Appendix 5. A list of minor produce is given in Appendix 6.

[Table 23, appearing on p. 286 of the text, has not been preserved - An.]
 2.3 [See pp. 329-333, category 116 -- An.]

MINERALS

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6.67 In the erstwhile State of Travancore-Cochin, there were 14 centres of production around Cape Comorin and one at Malipuram, Vyppeen Island, Ernakulam district. Consequent upon reorganization of the States, there is only one salt work in Kerala today. This is reflected in the sudden drop in production to a few hundred tons of salt between 1955 and 1956. ^{433*}
317

6.68 The prime requisite for the manufacture of salt by the solar evaporation method is a dry climate with accompanying low humidity. Such a condition is rarely obtained anywhere in the State. The result is that the yield of salt is very low with the cost of production at 75 nP. to a rupee per maund (in Tuticorin—cost of production is 25 nP.). In view of the unfavourable climatic conditions, this industry does not appear to have much prospects in the State. ⁽¹³²⁾
[435]

Tile-Clay

6.69 Tile-clay is the raw material for one of the major industries of Kerala viz., the tile industry. More than 150 tile factories operate in the State, providing employment to over 10,000 workers. Tiles produced are sent to other parts of India as well as to markets in some of the Far Eastern countries. The exports are mainly from the Feroke area. ³³⁹
[439]

6.70 Local earths, silts and clays are found along the alluvial flats of most of the rivers of the State. Clay collection is seasonal and is undertaken through contractors. It provides employment to about 3,500 people. Collection is done manually and the clay is transported by countrycrafts along the waterways, or by roads, where water transport facilities are not available. Depending on the distance of transportation, the price of clay varies from Rs. 2 to Rs. 5 per ton at the factory. ³¹⁷
[447]

6.71 In 1865, the 'Basel German Industrialists' started the first tile factory in the country at Mangalore with the object of securing the Far East Market, which was until then being supplied by the French tile industry in Marseilles. The industry then spread rapidly, first to Feroke near Kozhikode and later on to Quilon and other areas, until today, Kerala can well claim to be the home of the tile industry in the country. ³³⁹

6.72 Production of tile-clay in the State during the last few years is given in Table 31. ^{433*}
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6.73 As can be observed, there has been a declining trend in tile production. The main part of the decrease has taken place in the major tile producing areas of Trichur and Quilon,

6.74 The decline in output of tiles is due to a shrinkage in the foreign markets. On the other hand, an optimum area for distribution within the internal market is a belt of 400 miles from the coast. In view of the near saturation point which Kerala's tile industry has reached, prospects for increased production of tile-clay are rather bleak.

Other Minerals

6.75 Gold : Occurrences of gold in Wynaad and Nilambur area have been known since the late nineteenth century. The discovery of old workings led to the

[Table 31, appearing on p. 291 of the text, has not been processed -- Analyst]

377 the cost of generation as estimated at present would rarely exceed 2 nP per unit.
 435 As against this, the cost per unit of thermal power is estimated to vary between 6 nP to 10 nP for stations which are far from coal fields, as would be the case if Kerala were to go in for thermal generation. Table 35 presents some factual data regarding the cost of hydro-power generation.

377 7.20 Development of thermal power resources sometimes becomes necessary as a stabilizer for fluctuations in generating capacity of hydro dams caused by variations in the extent of rainfall. This problem does not arise in case of Kerala since a high level of rainfall which, in addition, is fairly well distributed over the year, is practically assured. As pointed out in another chapter, the co-efficient of mean deviation for annual rainfall in the case of Kerala is one of the lowest in the whole of India.

371 7.21 On account of these factors, electric energy from hydro resources would continue to occupy a predominant place in Kerala. The possibility of generating nuclear power within the foreseeable future can almost be ruled out for Kerala. Investment in nuclear power stations is of the order of Rs. 1,800 to Rs. 2,500 per kW of installed capacity, which is higher than those for thermal and hydro stations. Since Kerala has plenty of untapped hydro-power potential, the question of using nuclear energy does not arise.

DEMAND FOR AND SUPPLY OF POWER

377 7.22 The simultaneous maximum demand, as recorded on the State electricity system, reached a peak of 94 MW during September, 1960. Over and above this, [339] purchase from Madras State for Kerala system was about 8.6 MW and from Kerala to Madras was about 2.6 MW. So the net draw from the Madras system during September, 1960, was of the order of 6 MW. Hence the latest recorded demand on the State may be taken to be of the order of 100 MW during September, 1960, as against the available firm capacity of 84.5 MW.

433 7.23 In this context, an independent forecast may be attempted here on the basis of projections for industrial output made in the chapter on Industries. Factory sector 377 is the main industrial consumer of electricity accounting for roughly 65 per cent of energy generated. The net output of factory industry is projected to increase from Rs. 24.4 crores in 1960-61 to Rs. 89.2 crores in 1970-71. In 1955-56, power consumption by industries corresponding to net factory output of Rs. 18.40 crores was 224 million kWh. In other words 1.24 units of electricity were used to produce one rupee worth of net output in industries. The corresponding ratio for the country was 0.8 kWh/Rupee. The relatively higher coefficient in Kerala reflects the more [328] power-intensive industrial structure. This is mainly due to the location of aluminium and other electro-chemical industries in Kerala.

7.24 According to NCAER's projections¹, the power intensity of industries may be expected to increase both as a result of the spread of power-using equipment and

[113] ¹ Demand for Energy in India (1960-75), NCAER.

² [Table 35, appearing on p. 293 of the text, has not been processed - - Adalyst]

[p 159]

[PP. 1-158 not processed]

CHAPTER 2

THE POLYANDRY OF THE THANDANS (TIYAS), KAMMALANS, AND OTHER ARTISAN CASTES OF KERALA

Anthropological research in Kerala is not, and never has been, easy. Human society there, as we shall see from what follows, is extremely complex, being made up of innumerable Hindu castes, sub-castes and outcastes, to which must be added other non-Hindu communities, such as the Moslems, Christians, and Jews. To gain an insight into these, or even, as in our case, into only a section of them – namely those practising polyandry – is a painstaking affair, especially when one realizes, as one very soon does, that the customs of a single ethnic group are by no means uniform in the whole state and often vary radically from north to south. 114 184

The climate, too, is a problem. Most of Kerala is damp and tropical all the year round, with a very wet period during the summer monsoon from June to October. The record density of the population makes for poor and inadequate quarters in which to live. Communications are bad, the rainy season disrupting traffic quite seriously with floods and high winds because of the physical nature of the land, which can be described as follows. 114 132 161 484

A. KERALA, A DESCRIPTION

1. ENVIRONMENT

The State of Kerala stretches, today, from the boundary of South Canara in Mysore State in the north, to Cape Comorin in the south, the latter being the most southerly point of the Indian continent. It is an extremely narrow belt of coastland, only five miles wide at some points and never exceeding seventy at its widest, which is at the Palghat gap. It is bordered on the west by the Arabian Sea of the Indian Ocean, in which are to be found the Laccadive islands, administratively part of the State, and on the east, by the imposing range of mountains called the Western 131 133

[131] Ghats, the height of which varies between five and over eight thousand feet.

[631] Before 1957, when the new State of Kerala came into being with the reorganization of the Indian States, the area included the large Madras district of Malabar; the French possession of Mahe, and the princely State of Cochin amalgamated with that of Travancore. The respective capitals were Calicut (today Kozhikode), Ernakulam, and Trivandrum, the French possession being limited to the town bearing the same name as itself.

133 All rivers in Kerala, except those of the more elevated taluk of the Wynaad, run from east to west, cutting the coastal strip into sections. Inland, however, vast stretches of practically stagnant water, comparable to lagoons, known locally under the name of backwaters, extend down the whole length of the State, affording uninterrupted communication.

133 Geologically, Kerala is a low tableland of red laterite and clay, fringed by a coast of alluvial formation. Laterite, from the name given to it by Dr Buchanan in 1800, is really a soil of decomposed gneiss, from which the Western Ghats are made. When dug up and left to the action of sun and rain, only the skeleton of hard material remains, sponge-like in appearance, from which blocks of building material are cut. It is not very resistant or long-lived, and gradually disintegrates into a red type of gravel, more or less finely granulated.

134 The resultant soil or loam is a well-balanced mixture of clay and sand, admittedly poor in organic matter, but well-suited to the special types of crops which have given Kerala its wealth. Thus rice, coconuts, pepper

241 and betel, arecanuts, jack fruits, mangoes and cashews, do extraordinarily well in it, helped as they are by the damp, warm climate constant

● 132 throughout the year. There are two monsoons in Kerala, the south-west monsoon of the summer, which is the principal one, and the north-west monsoon of the autumn which, lately, often fails.

137 In appearance, the landscape of Kerala varies very little from the coastal line to the towering peaks of the Western Ghats. Along the beach of fine sand, coconut trees in an unending perspective, raise their gently waving palm leaves in a manner reminiscent of the South Seas and of Ceylon. Jack fruit trees and mangoes behind them, being of a darker coloured foliage, give depth to the romantic scene. It is among

[361] these that the houses of the inhabitants of Kerala are to be found. Unlike the rest of India, human habitations are not grouped together here in villages and towns. Each stands isolated from its neighbours, in a

[351] garden-like compound surrounded by a stout fence of brambles or of

NAYAR

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- 796 themselves in the neatest and grandest possible attire.
- [302] They also darken the fringes of their eyelids with a sticky preparation of soot mixed up with a little oil or ghee, and sometimes with a superficial coating of
- [276] antimony powder. They also wear white, black, or red marks down the middle of their foreheads. They also chew betel, and thus redden their mouths and lips.
- [526] They then proceed to the enjoyment of another prominent item of pleasure, viz., swinging to and fro on what is usually known as an uzhinjal, or swing made
- [262] of bamboo. On the festival day, after the morning bath is over, they take a light meal, and in the noon the family dinner is voraciously attacked, the essential and almost universal ingredients being ordinary ripe plantain fruits, and a delicious preparation of arrowroot powder purified and mixed with jaggery (crude sugar) or sugar, and also cocoanut. Then, till evening, dancing and
- [593] merry-making are ceaselessly indulged in. The husband population are inexcusably required to be present in the wives' houses before evening, as they are bound to do on
- [586] the Ōnam and Vishu occasions. Failure to do this is looked upon as a step, or rather the first step, on the part of the defaulting husband towards a final separation or divorce from the wife. Despite the rigour of
- [132] the bleak December season during which the festival commonly falls, heightened inevitably by the constant blowing of the cold east wind upon their moistened frames, these lusty maidens derive considerable pleasure from their early baths, and their frolics in the water. The biting cold of the season, which makes their persons shiver and quiver, becomes to them in the midst of all their ecstatic frolics an additional source of pleasure. The two items described above, viz., the swinging and beating of the water, have each their own distinctive

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Literary and place-name evidence points to continuing growth of the land within proto-historic or even historic times. It seems likely that there were at least two phases of relative upward movement, represented by erosion surfaces in the laterite at around 250 and 600 ft, while the last stage—that reflected in legend and literature—added the eight miles or so between the existing shore and a line of villages of whose names 'sea' or 'island' is a component; some places mentioned by Ptolemy as sea-ports now lie at a similar distance inland. But all these are near the great Cochin backwater, which suggests—as do the large-scale maps—that normal prograding on a low shoreline of emergence is responsible for this accretion, rather than an actual change of levels. Probably associated with this are the Malabar mudbanks, which lie off all the river mouths. They are up to eight miles long, and their extremely finely comminuted lateritic mud forms as it were an emollient which deadens the ocean swell; in their lee are safe roadsteads for the small ports of the coast.

The general tripartite longitudinal division is found: alluvial coastland, low lateritic plateaus and foothills, gneissic highlands. The division is indeed rather more clear cut than in the more complex Nn lowlands, but each zone has certain peculiarities. In the alluvium is the great development of lagoons and backwaters, saline or fresh, which, with some artificial cuts, form splendid waterways for some 150 miles from the Ponnani mouth to Trivandrum. The largest of these, behind Cochin, widens out Swds into Vembanad Lake. The laterites (including the ?Pliocene Warkalais) form plateaus at 200–600 ft, with much grass and scrub; into them project spurs of the Anaimalai-Cardamom Hills which, S of Palghat, have a very strong SE–NW trend, shown by the Periyar Valley. The hills themselves, rain-swept and forested, will be treated in the next chapter, but it may be noted here that the plantation agriculture of Kerala is confined to them, and the development of hydro-electricity from Pallivasal is of great importance to the agriculture and industry of the lowland.

The Ponnani, the headwaters of which rise on the Nn slopes of the Anaimalais, leads up to the Palghat Gap, nearly 20 miles wide and not much over 1100 ft on its broad sill, which lies beyond the regional limits. Farther S the higher (nearly 1500 ft) and much narrower Shencottah Gap gives access to the extreme S of Madras. It is noteworthy that in both these gaps there were exclaves of Cochin and Travancore territory, extending well E of the watershed in the latter; these, with the ancient walls across the Comorin lowland, emphasise the importance of these sole easy points of contact between Kerala and Tamilnad.

Climate and Agriculture

The climate represents the nearest approach in India to equatorial conditions. Maximum temperatures rarely exceed 90° F., minima rarely fall

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[433]
[377]

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below 70°, the annual range at Cochin is only 6° and the diurnal is about 10°. Apart from the high falls (180 ins. plus) in the hills, rainfall decreases from N to S (Calicut 119, Trivandrum 64 ins.) and the extreme S, around Comorin, falls below 40: here alone are there major irrigation works. But this decrease is balanced by a better seasonal distribution in the S: Trivandrum has 24.85 ins. in June–August, 21.32 in September–November, and 18.23 in December–May—28% in what is an almost completely dry season in nearly all the rest of the sub-continent. 132 ●

Kerala as a whole (including the hills) has an area of about 15,500 sq mls, 311 of which some 20% (mainly on the Travancore hills and foothills) is forested and 45% NSA. The TSA is about 15–20% greater than NSA in Cochin and Malabar. The question of 'culturable waste' is, as usual, difficult; but it seems that in the alluvial and lateritic zones respectively about 75–80 and 65–70% of the total area, or 90 and 80% of the 'cultivable', are in fact cultivated.⁴⁴ It is clear that what is left will be marginal and that there is very little room for expansion.

Rice is dominant, occupying about 260,000 out of a TSA of 550,000 311 cropped ac. in Cochin, 860,000 out of 1,790,000 in Malabar, but only 241 655,000 out of 2,200,000 in Travancore. The area under rubber, tea, and pepper in the Travancore hills accounts for this in part; but in Cochin and Malabar a good deal of rice is grown on the lateritic hills after burning the jungle; the heavier rainfall has probably a bearing on this. The local variations in cropping, analysed in detail in Kuriyan's 1942 paper, deserve summarising:

(i) In the extreme S rice is grown by canal- and in Shencottah taluk (E of the hills and really outside the region) by tank-irrigation. With intensive watering and careful transplanting crops can be obtained both in September–October and in February–March. In Chittur taluk—the Cochin outlier in Palghat—there is also a little irrigation by *anicuts* or weirs feeding canals, and here cotton and groundnuts are grown. These three areas are strongly influenced by Tamil methods. 311 312 ✓

(ii) Along the backwaters (*punja* and *cole* areas) the problem is not to get water on the land but to get it off. These areas are divided into blocks of up to 50 (exceptionally 100) ac., bounded by double dykes enclosing a channel. From July to September–October the ground is submerged, sometimes to a depth of several feet; after the rains the water is lifted into the bounding channels by Persian wheels; latterly oil-driven and still more recently electric pumps powered from Pallivasal have been introduced. The land lies three or four feet below the water-level in the channels, and sluices regulate various inundations during the growing season. Should the bunds be burst the half-drowned crop may be reaped from boats by cutting off the heads.

(iii) Along the backwaters on the Cochin-Malabar boundary the soil on areas liable to salt-water inundation is heaped up into mounds about one foot

⁴⁴ Kuriyan (1938), 133; (1942).

132, 113

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[For a description of climate regions of the Indian sub-continent and its general effects on agriculture and health, see 6: Spate AW1 India, category 116, pp. 40-62.]